

2851

Pf

PATENT
Customer No. 22,852
Attorney Docket No. 371922003400
FHFG&D Docket No. 07303.0064-00000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Martin LEE et al.) Group Art Unit: 2851
Application No.: 09/773,818) Examiner: H. Nguyen
Filed: February 2, 2001) Confirmation No.: 8237
For: AIR BEARING ASSEMBLY)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

REQUEST FOR RECONSIDERATION

In response to the Office Action mailed May 17, 2004, Applicants respectfully request that the Examiner reconsider the present application and withdraw the claim rejections for the reasons explained in detail below.

In the Office Action, the Examiner withdrew claims 38-48 as directed to non-elected inventions;¹ required formal drawings; rejected claims 1, 2, 6-8, 14-16, 18-20, and 31-37 under 35 U.S.C. § 102(b) as being anticipated by Phillips (U.S. Patent No. 4,676,649); rejected claims 9-13, 17, and 23 under 35 U.S.C. § 103(a) as being unpatentable over Phillips in view of Sogard (U.S. Patent No. 6,402,380); and indicated

¹ On the Office Action Summary, the Examiner indicates that claims 37-48 have been withdrawn from consideration. Applicants respectfully note that claim 37, among others, was elected in the Response to Restriction Requirement filed March 12, 2004, and that the Examiner has apparently examined claim 37 on the merits, since the Examiner rejected that claim in the Office Action. Therefore, Applicants respectfully submit that claims 1-37 are pending on the merits rather than claims 1-36.

that claims 3-5, 21, 22, and 24-30 would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. Claim 1 is the only independent claim rejected under 35 U.S.C. § 102(b) based on the Phillips reference, and Applicants respectfully traverse that rejection because Phillips fails to disclose or suggest all of the subject matter recited in Applicants' independent claim 1.

Applicants' invention as recited in independent claim 1 is directed to a stage device including a base, and a stage positioned adjacent to the base and movable relative to the base. The stage device further includes a bearing assembly including at least one fluid bearing interposed between the base and the stage for supporting the stage on the base and movable relative to the base and the stage. The Phillips reference does not disclose or suggest at least a stage device including a bearing assembly including at least one fluid bearing interposed between a base and a stage for supporting the stage on the base and movable relative to the base and the stage.

Applicants have found that in conventional stage assemblies, which use air bearings to support a stage, the bearings may be attached to either a base or to the stage. The air bearings thus travel with the stage over the entire base, which requires the base to have a surface at least as large as the diameter of the bearing plus the distance of travel of the stage. In contrast, by virtue of Applicants' claimed stage device, since the bearings move relative to both the base and the stage, they may need to only travel half the distance of the total travel distance of the stage. As a result, the lower surface of the stage and the upper surface of the base over which the bearings travel may only need to be as large as the bearing diameter plus half the total travel distance of the stage, thereby allowing for a reduction in the overall size of the stage device.

In the Office Action, the Examiner interprets the Phillips reference as disclosing “a base (16); a stage (11) positioned adjacent to the base and movable relative to the base; a bearing assembly (18) comprising at least one fluid/gas bearing interposed between the base and the stage for supporting the stage on the base and movable relative to the base and the stage (see figure 1).” Office Action at 2. Applicants respectfully disagree with the Examiner’s interpretation about what the Phillips reference discloses. Contrary to the Examiner’ interpretation, the Phillips reference does not disclose at least a stage device including a bearing assembly including at least one fluid bearing interposed between a base and a stage movable relative to the base and the stage. Rather, the Phillips reference discloses a multi-axis gas bearing stage assembly including stabilized gas bearings 18 that are not movable relative to the stage 11.

In particular, Phillips discloses multi-axis gas bearing stage assembly 10 including “[a]n X-Y-θ stage 11 constrained for movement along orthogonal X and Y axes and along a θ-axis about a Z direction orthogonal to both the X and Y axes of motion.” Col. 7, lines 6-9. Phillips further discloses that “[t]he X-Y-θ stage 11 can move to any position in a plane which is parallel to a top reference surface 12 of an intermediate stage element 24 and a top reference surface 14 of a base 16. Col. 7, lines 9-13. According to Phillips, “[a] plurality of vacuum stabilized gas bearings 18 [(see FIG. 3, which is a plan view of the underside an X-Y-θ stage 11), which] locate and stabilize the X-Y-θ stage 11 with respect to the top reference surface 12 of the intermediate stage element 24” Col. 5, lines 26-28; col. 7, lines 26-28. Phillips explains that “[t]he X-Y-θ stage 11 is driven to selected locations along the X-axis of motion with respect to the intermediate stage element 24 by an X-axis drive assembly 30,” and that “[t]he

X-axis drive assembly 30 is located in a slot 31 formed in the center of the top surface of the intermediate stage element 24." Col. 7, lines 27-32.

In other words, Phillips discloses vacuum stabilized bearings 18 placed on the underside of the X-Y-θ stage 11, but does not disclose whether the vacuum stabilized gas bearings 18 are fixed to the underside of the X-Y-θ stage 11 or movable relative to the X-Y-θ stage 11. Applicants respectfully note that if the Phillips vacuum stabilized gas bearings 18 were movable relative to the X-Y-θ stage 11, the Phillips system would necessarily need a drive assembly for driving the vacuum stabilized gas bearings 18. Applicants note, however, that Phillips does not disclose a drive assembly for the vacuum stabilized gas bearings 18. Therefore, the Phillips vacuum stabilized gas bearings 18 cannot be movable relative to the X-Y-θ stage 11. As a result, the Phillips reference does not disclose or suggest, either explicitly or inherently, a stage device including a bearing assembly including at least one fluid bearing interposed between a base and a stage movable relative to the base and the stage.

Since the Phillips reference does not disclose or suggest all of the subject matter recited in Applicants' independent claim 1, that claim is patentably distinguishable from the Phillips reference.

The Examiner also rejected claims 9-13, 17, and 23 under 35 U.S.C. § 103(a) as being unpatentable over Phillips in view of Sogard. Claims 9-13, 17, and 23 depend from allowable independent claim 1. Therefore, those dependent claims should be allowable for at least the same reasons independent claim 1 is allowable.

Conclusions

For at least the reasons set forth above, independent claim 1 should be allowable. Dependent claims 2-38 depend from independent claim 1. Consequently,

those dependent claims should be allowable for at least the same reasons claim 1 is allowable.

Applicants respectfully request reconsideration and withdrawal of the outstanding claim rejections, and the allowance of claims 1-37.

If the Examiner believes that a telephone conversation might advance prosecution of this application, the Examiner is cordially invited to call Applicants' undersigned attorney at 571-203-2739.

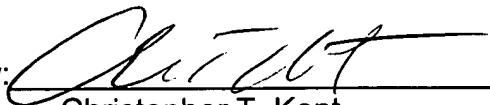
Applicants respectfully submit that the Office Action contains numerous assertions concerning the related art and the claims. Regardless of whether those assertions are addressed specifically herein, Applicants respectfully decline to automatically subscribe to them.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 6-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: August 17, 2004

By: 
Christopher T. Kent
Reg. No. 48,216



PATENT
Customer No. 22,852
Attorney Docket No. 371922003400
FHFG&D Docket No. 07303.0064-00000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Martin LEE et al.)
Application No.: 09/773,818) Group Art Unit: 2851
Filed: February 2, 2001) Examiner: H. Nguyen
For: AIR BEARING ASSEMBLY) Confirmation No.: 8237
)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

SUBMISSION OF FORMAL DRAWINGS

Subject to the approval of the Examiner, please replace the informal drawings with the thirteen (13) sheets of formal drawings filed herewith containing Figs. 1-19. If the formal drawings are for any reason not in full compliance with the pertinent statutes and regulations, please so advise the undersigned.

If any fees are necessary for the submission of these formal drawings, please charge our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: August 17, 2004

By: 
Christopher T. Kent
Reg. No. 48,216